Elevate the Quality of Audio Lifetime Testing

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SONEST

Sponsored By: SONOS

Purpose

Boom, Your company comes up with a new speaker design. Magic! Now you have to test it. Traditional speaker test systems are large, expensive, and slow to use for simple performance tests. Sonest Test Systems has you covered. Comparably cheap, reliably accurate, scalable to all of your products, our system will put your product up against the test it needs, and show you how it stacks up.

Overview

What it is: The Sonest test module is a small 5 in x 4 in, customizable system for near field speaker analysis. It provides accurate data from the sound (or lack of sound) produced by the speaker. The data is formatted for you into MATLAB where you can use one of our pre-made tests, or devise your own.

How it Works: The module acquires data from two front mounted digital mems microphones, sends this data to the MCU where it is is buffered and sent out to the host computer via Ethernet. With a few provided MATLAB commands, the data can be read in and formatted for you.

The benefits: Have quantifiable data about the speaker and its current condition at any time a small desk top is available. Allows for quick testing and prototyping of speakers in any stage of life.

Test Module

Length: 5in
Height: 5in
Width: 4in

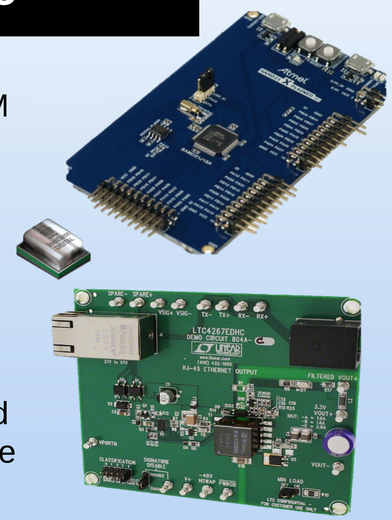
- **Small size** allows for desktop testing
- 2 mems microphones provide **accurate sound data**
- Ethernet interface gives reliable connection to **any host computer**
- **Power over Ethernet** (PoE) reduces cords and increases simplicity
- MATLAB interface allows for **custom test scripts**

Hardware

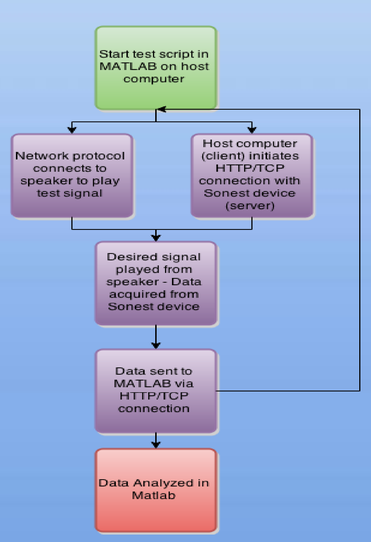
MCU: SAMD21J18A
- I2S interface, 48MHz ARM Cortex CPU, 256KB flash

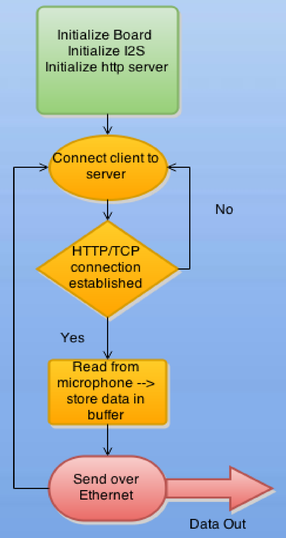
Mic: INMP441 Digital I2S
- 24 bit data, 61dBA SNR, flat frequency response 60Hz -15kHz

PoE: LTC4267 Demo board
- IEEE 802.3af power device (PD) interface, 5V output

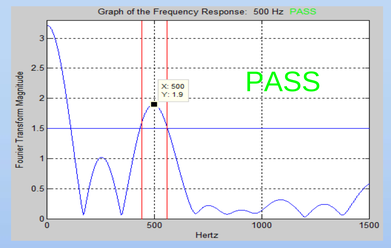


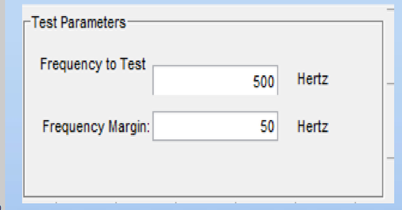
Process/Firmware Flow

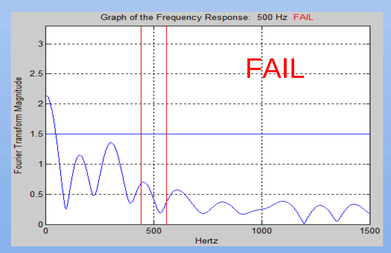


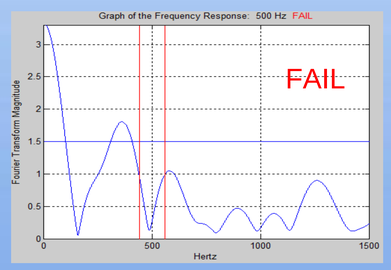


Example FFT Test









A perfect speaker can be easily identified (Top Left) A broken speaker is detected and fails the test (Bottom Left) A degraded speaker is detected and fails the test (Bottom Right) The Easy to Use UI (Top Right)

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